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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,634	08/25/2003	Russell C. Zahorik	3131.6US (96-1119.06/US)	3991
24247	7590	01/19/2006	EXAMINER	
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			VINH, LAN	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 01/19/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/647,634

**Applicant(s)**

ZAHORIK ET AL.

**Examiner**

Lan Vinh

**Art Unit**

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/29/2005 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-7, 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmi et al (US 5,931,722)

Ohmi discloses a polishing method. The method comprises the steps of:

providing a polishing/etchant-dispensing apparatus having an inlet thereto for an polishing slurry /etchant agent and a pipe/tubular member 32 having at least one thin annular edge thereon (col 9, lines 45-54; fig. 5)

Art Unit: 1765

placing an area of the wafer 40 within an opening/annular member of the polishing/etchant-dispensing apparatus, the thin annular edge of member located adjacent a portion of the wafer (fig. 5), the apparatus is used to wash/clean wafer (col 6, lines 34-36)

aligning the wafer and the polishing/etchant-dispensing apparatus (fig. 5)

dispensing a polishing slurry/ etchant through supply path 31/another tubular member having a portion surrounded by the tubular member 32 onto an area of the wafer-by using the dispensing apparatus (col 9, lines 45-52; fig. 5)

exhausting/removing the polishing slurry/etchant to the exterior of the apparatus (col 10, lines 22-25)

Since Ohmi discloses using the same claimed steps as well as the same claimed structural limitations, as per claim 1, in a method to polish in a highly efficient manner, then under the theory of inherency, the steps employed by Shimomura would inherently clean material from the wafer as the claimed invention

Regarding claims 2-3, fig. 5 of Ohmi shows that the wafer is aligned in a substantially perpendicular position in relation to the dispensing apparatus.

Regarding claims 4-6, fig. 5 of Ohmi shows that the opening of the thin annular edge is aligned in a substantially perpendicular to a portion of the wafer

The limitation of claim 7 has been discussed above

Regarding claims 10-11, Ohmi discloses the step of rinsing/cleaning the wafer surface with ionized water (col 7, lines 1-9)

Art Unit: 1765

Regarding claim 12, Ohmi discloses supplying a polishing slurry/liquid (col 9, lines 50-54)

4. Claims 13-15, 18-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ohmi et al (US 5,931,722)

Ohmi discloses a polishing method. The method comprises the steps of:

chemical mechanical polishing a wafer prior to washing/removing material from the wafer (col 6, lines 20-36)

providing a polishing/etchant-dispensing apparatus having an inlet thereto for an polishing slurry /etchant agent and a pipe/tubular member 32 having at least one thin annular edge thereon (col 9, lines 45-54; fig. 5)

placing an area of the wafer 40 within an opening/annular member of the polishing/etchant-dispensing apparatus, the thin annular edge of member located adjacent a portion of the wafer (fig. 5), the apparatus is used to wash/clean wafer (col 6, lines 34-36)

aligning the wafer and the polishing/etchant-dispensing apparatus (fig. 5)

dispensing a polishing slurry/ etchant through supply path 31/another tubular member having a portion surrounded by the tubular member 32 onto an area of the wafer-by using the dispensing apparatus (col 9, lines 45-52; fig. 5)

exhausting/removing the polishing slurry/etchant to the exterior of the apparatus (col 10, lines 22-25)

Art Unit: 1765

Since Ohmi discloses using the same claimed steps as well as the same claimed structural limitations, as per claim 13, in a method to polish in a highly efficient manner, then under the theory of inherency, the steps employed by Ohmi would inherently selectively removing a material from a wafer as the claimed invention

Regarding claim 14, fig. 5 of Ohmi shows that the opening of the thin annular edge is aligned in a substantially perpendicular to a portion of the wafer

The limitation of claim 15 has been discussed above

Regarding claims 18-19, Ohmi discloses the step of rinsing/cleaning the wafer surface with ionized water (col 7, lines 1-9)

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al (US 5,931,722) in view of Iwashita et al (US 5,722,875)

Ohmi method has been disclosed above. Unlike the instant claimed inventions as per claims 8, 16, Ohmi fails to disclose cleaning refractory metal from the wafer

Iwashita, in a method for polishing a wafer having a material formed thereon, discloses that the material can be Cu or tungsten/refractory metal (col 5, lines 13-15)

Art Unit: 1765

Since Ohmi is directed to a CMP method, one skilled in the art at the time the invention was made would have found it obvious to employ Ohmi method to clean refractory metal in view of Iwashita teaching because Iwashita discloses that the CMP is applied to etch away portion of metallic film such as tungsten (col 1, lines 20-25)

7. Claims 9, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al (US 5,931,722) in view of Drill (US 6,190,236)

Ohmi method has been disclosed above. Unlike the instant claimed inventions as per claims 9, 17, Ohmi fails to disclose the step of removing the etchant/slurry by suction and vacuum

Drill discloses a method for polishing comprises the step of removing the etchant/slurry by suction and vacuum (col 7, lines 1-3)

Since Ohmi is directed a to a CMP method, one skilled in the art at the time the invention was made would have found it obvious to modify Ohmi method by adding the step of removing the etchant/slurry by suction and vacuum as per Drill because Drill discloses that the vacuum removal system increases the period of time a polishing pad may be utilized in the CMP machine before incurring a time consuming down time for polishing pad change out (col 6, lines 17-21)

### ***Response to Arguments***

8. Applicant's arguments which asserts that the previously cited reference of Shiromura (US 5,922,620) does not disclose " dispensing an etchant through another

Art Unit: 1765

tubular member having a portion thereof surrounded by the tubular member having at least one thin annular edge thereon onto the area of the wafer using the etchant-dispensing apparatus to clean material from the wafer" have been considered but are moot in view of the new ground(s) of rejection based on Ohmi that discloses dispensing a polishing slurry/ etchant through supply path 31/another tubular member having a portion surrounded by the tubular member 32 onto an area of the wafer-by using the dispensing apparatus (col 9, lines 45-52; fig. 5)

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Vinh whose telephone number is 571 272 1471. The examiner can normally be reached on M-F 8:30-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571 272 1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

LV

January 16, 2006